

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method of preparing nickel oxyhydroxide, the method comprising:

combining a nickel hydroxide and a hydroxide salt in a substantially air-free ~~an~~ inert atmosphere to form a mixture; and

exposing the mixture to ozone to form a nickel oxyhydroxide.

2. (Original) The method of claim 1, wherein the nickel hydroxide includes a beta-nickel hydroxide, a cobalt hydroxide-coated beta-nickel hydroxide, an alpha-nickel hydroxide, or a cobalt hydroxide-coated alpha-nickel hydroxide.

3. (Original) The method of claim 1, wherein the nickel oxyhydroxide includes a beta-nickel oxyhydroxide, a cobalt oxyhydroxide-coated beta-nickel oxyhydroxide, a gamma-nickel oxyhydroxide, or a cobalt oxyhydroxide-coated gamma-nickel oxyhydroxide.

4. (Original) The method of claim 1, wherein the inert atmosphere is substantially free of carbon dioxide.

5. (Original) The method of claim 1, wherein the inert atmosphere is substantially free of water.

6. (Original) The method of claim 1, wherein the inert atmosphere is substantially free of carbon dioxide and substantially free of water.

7. (Original) The method of claim 1, further comprising heating the mixture prior to or during exposing the mixture to ozone.

8. (Original) The method of claim 1, further comprising agitating the mixture during exposing the mixture to ozone.

9. (Original) The method of claim 1, wherein exposing the mixture to ozone includes contacting the mixture with a gas mixture including ozone.

10. (Original) The method of claim 9, wherein the gas mixture includes dioxygen.

11. (Original) The method of claim 9, wherein the gas mixture includes water.

12. (Original) The method of claim 1, wherein the nickel hydroxide is a powder including particles having a spherical, spheroidal, or ellipsoidal shape.

13. (Original) The method of claim 1, wherein the nickel hydroxide is a substantially dry nickel hydroxide.

14. (Original) The method of claim 1, wherein the hydroxide salt includes potassium hydroxide, sodium hydroxide, lithium hydroxide, or mixtures thereof.

15. (Original) The method of claim 1, wherein the hydroxide salt includes silver hydroxide or gold hydroxide.

16. (Original) The method of claim 1, wherein the mixture is exposed to ozone for less than 24 hours.

17. (Original) The method of claim 16, wherein the nickel hydroxide includes a cobalt hydroxide-coated beta-nickel hydroxide or a cobalt hydroxide-coated alpha-nickel hydroxide.

18. (Original) The method of claim 1, wherein the mixture further includes an oxidation-promoting additive.

19. (Original) The method of claim 18, wherein the oxidation-promoting additive includes metallic silver, silver(+1) oxide, silver(+1,+3) oxide, metallic gold, gold (+3) oxide, gold (+3) hydroxide, potassium peroxide, potassium superoxide, potassium permanganate, or silver permanganate.

20. (Original) The method of claim 1, wherein the nickel hydroxide includes a bulk dopant.

21. (Original) The method of claim 1, wherein the bulk dopant includes aluminum, manganese, cobalt, gallium, indium, or bismuth.

22. (Withdrawn) A battery comprising:  
a cathode comprising a carbonate-free nickel oxyhydroxide;  
an anode;  
a separator; and  
an electrolyte.

23. (Withdrawn) The battery of claim 22, wherein the nickel oxyhydroxide includes a cobalt oxyhydroxide-modified nickel oxyhydroxide.

24. (Withdrawn) The battery of claim 22, wherein the nickel oxyhydroxide includes a cobalt oxyhydroxide-modified gamma-nickel oxyhydroxide.

25. (Withdrawn) The battery of claim 22, wherein the anode comprises zinc.

26. (Withdrawn) The battery of claim 23, wherein the cathode further includes an oxidizing additive.

27. (Withdrawn) The battery of claim 26, wherein the oxidizing additive includes sodium hypochlorite, sodium peroxydisulfate, potassium peroxydisulfate, potassium permanganate, barium permanganate, barium ferrate, silver permanganate, disilver oxide, or silver oxide.

28. (Withdrawn) The battery of claim 22, wherein the electrolyte includes potassium hydroxide, sodium hydroxide, lithium hydroxide, or mixtures thereof.

29. (Currently amended) A method of manufacturing a battery, the method comprising:

combining a nickel hydroxide and a hydroxide salt in a substantially air-free ~~an~~ inert atmosphere to form a mixture;

exposing the mixture to ozone to form a nickel oxyhydroxide; and

assembling a cathode comprising the nickel oxyhydroxide, an anode, a separator, and an electrolyte to form the battery.

30. (Currently amended) A method of decreasing capacity loss in a nickel oxyhydroxide battery, the method comprising:

combining a nickel hydroxide and a hydroxide salt in a substantially air-free ~~an~~ inert atmosphere to form a mixture;

exposing the mixture to ozone to form a nickel oxyhydroxide;

forming a cathode including the nickel oxyhydroxide; and

assembling the cathode, an anode, a separator, and an electrolyte to form the alkaline battery,

wherein the battery has a capacity loss after storage for 4 weeks at 60°C of less than 30 percent.

31. (Original) The method of claim 30, wherein the nickel hydroxide is cobalt hydroxide modified nickel hydroxide.

32. (New) The method of claim 29, wherein the inert atmosphere is substantially free of carbon dioxide.

33. (New) The method of claim 29, wherein the inert atmosphere is substantially free of water.

34. (New) The method of claim 29, wherein the inert atmosphere is substantially free of carbon dioxide and substantially free of water.

35. (New) The method of claim 29, wherein the inert atmosphere includes a gas selected from the group consisting of nitrogen, argon, helium, and oxygen.

36. (New) The method of claim 30, wherein the inert atmosphere is substantially free of carbon dioxide.

37. (New) The method of claim 30, wherein the inert atmosphere is substantially free of water.

38. (New) The method of claim 30, wherein the inert atmosphere is substantially free of carbon dioxide and substantially free of water.

39. (New) The method of claim 30, wherein the inert atmosphere includes a gas selected from the group consisting of nitrogen, argon, helium, and oxygen.

40. (New) The method of claim 1, wherein the inert atmosphere includes a gas selected from the group consisting of nitrogen, argon, helium, and oxygen.

41. (New) A method of preparing nickel oxyhydroxide, the method comprising:  
combining a nickel hydroxide and a hydroxide salt in an inert atmosphere that is substantially free of carbon dioxide to form a mixture; and  
exposing the mixture to ozone to form a nickel oxyhydroxide.

42. (New) The method of claim 41, wherein the nickel hydroxide includes a beta-nickel hydroxide, a cobalt hydroxide-coated beta-nickel hydroxide, an alpha-nickel hydroxide, or a cobalt hydroxide-coated alpha-nickel hydroxide.

43. (New) The method of claim 41, wherein the nickel oxyhydroxide includes a beta-nickel oxyhydroxide, a cobalt oxyhydroxide-coated beta-nickel oxyhydroxide, a gamma-nickel oxyhydroxide, or a cobalt oxyhydroxide-coated gamma-nickel oxyhydroxide.

44. (New) The method of claim 41, further comprising heating the mixture prior to or during exposing the mixture to ozone.

45. (New) The method of claim 41, further comprising agitating the mixture during exposing the mixture to ozone.

46. (New) The method of claim 41, wherein exposing the mixture to ozone includes contacting the mixture with a gas mixture including ozone.

47. (New) The method of claim 46, wherein the gas mixture includes dioxygen.

48. (New) The method of claim 46, wherein the gas mixture includes water.

49. (New) The method of claim 41, wherein the nickel hydroxide is a powder including particles having a spherical, spheroidal, or ellipsoidal shape.

50. (New) The method of claim 41, wherein the nickel hydroxide is a substantially dry nickel hydroxide.

51. (New) The method of claim 41, wherein the hydroxide salt includes potassium hydroxide, sodium hydroxide, lithium hydroxide, or mixtures thereof.

52. (New) The method of claim 41, wherein the hydroxide salt includes silver hydroxide or gold hydroxide.

53. (New) The method of claim 41, wherein the mixture is exposed to ozone for less than 24 hours.

54. (New) The method of claim 53, wherein the nickel hydroxide includes a cobalt hydroxide-coated beta-nickel hydroxide or a cobalt hydroxide-coated alpha-nickel hydroxide.

55. (New) The method of claim 41, wherein the mixture further includes an oxidation-promoting additive.

56. (New) The method of claim 55, wherein the oxidation-promoting additive includes metallic silver, silver(+1) oxide, silver(+1,+3) oxide, metallic gold, gold (+3) oxide, gold (+3) hydroxide, potassium peroxide, potassium superoxide, potassium permanganate, or silver permanganate.

57. (New) The method of claim 41, wherein the nickel hydroxide includes a bulk dopant.

58. (New) The method of claim 41, wherein the bulk dopant includes aluminum, manganese, cobalt, gallium, indium, or bismuth.

59. (New) The method of claim 41, wherein the inert atmosphere includes a gas selected from the group consisting of nitrogen, argon, helium, and oxygen.

60. (New) A method of manufacturing a battery, the method comprising:  
combining a nickel hydroxide and a hydroxide salt in an inert atmosphere that is substantially free of carbon dioxide to form a mixture;  
exposing the mixture to ozone to form a nickel oxyhydroxide; and  
assembling a cathode comprising the nickel oxyhydroxide, an anode, a separator, and an electrolyte to form the battery.

61. (New) The method of claim 60, wherein the inert atmosphere is substantially free of water.

62. (New) The method of claim 60, wherein the inert atmosphere includes a gas selected from the group consisting of nitrogen, argon, helium, and oxygen.

63. (New) A method of decreasing capacity loss in a nickel oxyhydroxide battery, the method comprising:

combining a nickel hydroxide and a hydroxide salt in an inert atmosphere that is substantially free of carbon dioxide to form a mixture;

exposing the mixture to ozone to form a nickel oxyhydroxide;

forming a cathode including the nickel oxyhydroxide; and

assembling the cathode, an anode, a separator, and an electrolyte to form the alkaline battery,

wherein the battery has a capacity loss after storage for 4 weeks at 60°C of less than 30 percent.

64. (New) The method of claim 63, wherein the inert atmosphere is substantially free of water.

65. (New) The method of claim 63, wherein the inert atmosphere includes a gas selected from the group consisting of nitrogen, argon, helium, and oxygen.